Original Article :

Psychotropic Drug Prescription Practices in a Tertiary Care Hospital of Eastern India: An Observational Study

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Abstract

Background and Aims:
Psychotropic drug utilization studies are essential to assess prescribing rationality and identify determinants influencing drug choice, especially in resource-limited settings. Socio-economic factors play a pivotal role in treatment accessibility and rational psychotropic use in India. To evaluate psychotropic prescribing patterns and their association with socio-economic status among patients attending a tertiary care psychiatric outpatient department in Eastern India

Methods:
A cross-sectional observational study was conducted over three months (January–March 2025) at Calcutta Pavlov Hospital, Kolkata. A total of 150 prescriptions from adult outpatients (18–60 years) diagnosed with psychiatric disorders (ICD-10 criteria) were analyzed. Data were collected using a structured form and evaluated using WHO prescribing indicators. Socio-economic status was assessed by the Modified Kuppuswamy Scale (2021). Statistical analysis was performed employing descriptive statistics and Chi-square tests, with $p < 0.05$ considered significant.

Results:
Antipsychotics were the most commonly prescribed class (52%), followed by antidepressants (29.3%). The average number of drugs per prescription was 2.8 ± 1.1, with 86% prescribed by generic name and 90% from the National List of Essential Medicines (2022). Polypharmacy (≥ 2 psychotropics) occurred in 62% of prescriptions. A significant association was found between socio-economic status and drug choice ($p = 0.02$), with lower-income patients receiving older, cost-effective medications.

Conclusion:
Prescribing practices were largely rational and consistent with WHO recommendations; however, polypharmacy and socio-economic disparities persist. Strengthening prescription audits, promoting generic use, and ensuring equitable access to newer psychotropics are vital to achieving rational and inclusive mental healthcare in India.

Keywords:
Psychotropic Drugs, Prescribing Patterns, Polypharmacy, Socio-economic Status, Mental Healthcare

Introduction:

Mental disorders impose a substantial global health burden, contributing significantly to disability, morbidity, and loss of productivity. According to the World Health Organization (WHO), psychiatric illnesses account for a large share of Disability-Adjusted Life Years (DALYs) and are among the leading causes of global disease burden and years lived with disability[1,2]. In India, the situation is equally concerning, with a growing prevalence of depression, anxiety, and psychotic disorders that often remain underdiagnosed or inadequately treated[3,4].

In this context, psychotropic drug utilization studies serve as vital tools to evaluate prescribing trends, assess the rational use of medicines, and identify areas for improvement in mental healthcare delivery. As defined by the WHO, drug utilization research investigates the marketing, distribution, prescription, and consumption of drugs, aiming to ensure that medication use is rational, safe, and cost-effective[5]. These studies are particularly relevant in psychiatry, where irrational prescribing—including unnecessary polypharmacy, overuse of sedatives, or selection of non-essential drugs—can compromise therapeutic outcomes, increase adverse effects, and elevate healthcare costs[6,7].

Rational prescribing practices become even more crucial in resource-limited settings like India, where patients often depend on public healthcare facilities. In government hospitals of Kolkata and similar urban centers, a majority of patients belong to lower or middle socio-economic classes, with limited or no health insurance coverage. Medications are typically provided at subsidized rates or free of cost, emphasizing the importance of balancing cost-effectiveness with clinical efficacy in prescribing decisions. Therefore, understanding the relationship between a patient's socio-economic status and psychotropic drug selection has important clinical and policy implications.

Despite the increasing awareness of rational psychotropic use, studies in India reveal wide variations in prescribing behavior across regions and institutions[8,9,10]. Continuous evaluation of prescribing trends helps identify patterns such as preference for specific drug classes, frequency of polypharmacy, adherence to generic and essential medicine guidelines, and socio-economic determinants of drug choice.

Given this background, the present study was undertaken to systematically evaluate the patterns of psychotropic drug prescribing in a tertiary care psychiatric outpatient department in Eastern India and to explore the association between

socio-economic status and the type of psychotropic drugs prescribed. The findings are expected to provide valuable insights for promoting rational prescribing, reducing inequities, and guiding evidence-based policy decisions in mental healthcare.

Materials and Methods:

Study design and setting:

An institution-based, cross-sectional observational study was conducted in the Psychiatry Outpatient Department (OPD) of Calcutta Pavlov Hospital, in collaboration with the Department of Pharmacology, Calcutta National Medical College, Kolkata, West Bengal. The study was carried out over a three-month period, from January to March 2025.

Study Population and Eligibility Criteria:

Adult patients aged 18–60 years attending the Psychiatry OPD with a confirmed psychiatric diagnosis based on the International Classification of Diseases, 10th Revision (ICD-10) criteria were included. Written informed consent was obtained from all participants prior to enrollment.

Exclusion criteria were:

- Patients diagnosed primarily with epilepsy or neurological disorders,
- Inpatients and those receiving emergency psychiatric care,
- Patients with provisional or unclear psychiatric diagnoses, and
- Individuals unwilling to participate.

Sample Size and Sampling Technique:

A total of 150 prescriptions were reviewed. The sample size was determined based on feasibility over the defined study period, considering time and resource constraints. Although no formal power calculation was performed, the selected sample size was considered sufficient to provide an indicative overview of prescribing trends, consistent with prior observational studies conducted in similar settings.

A convenience sampling technique was employed, involving prescription data collected from OPD sessions conducted twice weekly over 12 weeks. To minimize potential selection bias and enhance representativeness, a purposive component ensured inclusion of patients from different diagnostic categories and socio-economic backgrounds.

Data Collection and Study Tool:

Data were collected using a structured and pretested case record form. Each prescription was analyzed for the following parameters:

- Name of each prescribed psychotropic drug (generic vs. brand),
- Number of psychotropic drugs per encounter,
- Therapeutic class of drugs prescribed,
- Use of fixed-dose combinations (FDCs),
- Whether each drug was included in the

National List of Essential Medicines (NLEM, 2022), and

- Socio-economic status of the patient.

Socio-economic status was assessed using the Modified Kuppuswamy Scale (2021 update), which classifies households into five socio-economic classes (I–V) based on the education and occupation of the head of the family and monthly family income. This scale is widely validated for urban Indian populations.

Assessment Parameters:

Prescribing patterns were evaluated using the World Health Organization (WHO) core prescribing indicators, which included:

1. Average number of drugs per encounter,
2. Percentage of drugs prescribed by generic name,
3. Percentage of drugs prescribed from the NLEM (2022),
4. Prevalence of polypharmacy (≥2 psychotropic drugs per prescription), and
5. Prevalence of excessive polypharmacy (>4psychotropicdrugsperprescription).

Ethical Considerations:

The study protocol was reviewed and approved by the Institutional Ethics Committee (IEC) of Calcutta National Medical College, Kolkata. Participation was entirely voluntary, and confidentiality of patient data was strictly maintained throughout the study.

Statistical Analysis:

All collected data were entered into Microsoft Excel and analyzed using IBM SPSS Statistics version 28.0. Descriptive statistics were used to summarize findings. Continuous variables such as age and number of drugs per prescription were expressed as mean ± standard deviation (SD), while categorical variables were expressed as frequencies and percentages.

Associations between socio-economic status and type of psychotropic drug prescribed were analyzed using the Chi-square test, with a p-value < 0.05 considered statistically significant.

Due to the limited sample size, multivariate regression analysis could not be applied; however, future multicentric studies with larger samples are recommended to adjust for potential confounders such as age, diagnosis, and gender.

Results:

The study involved a total of 150 prescriptions reviewed from patients attending the Psychiatry Outpatient Department of Calcutta Pavlov Hospital. The mean age of the study population was 36.4 years (± 10.5 years), with a gender distribution of 54% males and 46% females (Table 1).

Psychotropic drug prescribing patterns revealed that antipsychotics were the most frequently prescribed class of medications,

accounting for 52% of prescriptions, followed by antidepressants (29.3%), mood stabilizers (10%), and anxiolytics (8.7%) (Table 2). Among individual drugs, risperidone (28%) and sertraline (18%) were the most commonly prescribed, followed by sodium valproate (9.3%) and clonazepam (7.3%) (Table 3).

The study also assessed core prescribing indicators, which showed that the average number of drugs per prescription was 2.8 (± 1.1). A high percentage of drugs were prescribed by generic name (86%), and 90% of the prescribed drugs were listed in the National List of Essential Medicines (NLEM, 2022). However, polypharmacy (≥2 psychotropic drugs) was prevalent in 62% of prescriptions, with 7% involving excessive polypharmacy (more than four psychotropic drugs) (Table 4).

An analysis of prescribing trends in relation to socio-economic status revealed that lower-income patients (36.7%) were more likely to receive older, cost-effective medications like haloperidol and amitriptyline. Middle-income patients (46.7%) were predominantly prescribed risperidone and sertraline, while upper-income patients (16.6%) received newer medications such as aripiprazole and escitalopram. A statistically significant association was found between socio-economic class and the type of psychotropic drug prescribed (p = 0.02) (Table 5).

Table 1: Demographic Characteristics of the Study Population (n = 150).

Parameter	Value
Total Prescriptions Reviewed	150
Mean Age (years)	36.4 ± 10.5
Gender Distribution	Males: 81 (54%) Females: 69 (46%)

Table 2: Distribution of Prescribed Psychotropic Drug Classes

Drug Class	Number of Prescriptions (n)	Percentage (%)
Antipsychotics	78	52.0%
Antidepressants	44	29.3%
Mood Stabilizers	15	10.0%
Anxiolytics	13	8.7%
Total	150	100.0%

Table 3: Most Commonly Prescribed Psychotropic Drugs.

Drug	Class	Frequency (n)	Percentage (%)
Risperidone	Antipsychotic	42	28.0%
Sertraline	Antidepressant	27	18.0%
Sodium Valproate	Mood Stabilizer	14	9.3%
Clonazepam	Anxiolytic	11	7.3%

Table 4: WHO Core Drug Prescribing Indicators.

Indicator	Observed Value
Average Number of Drugs per Encounter	2.8 ± 1.1
Percentage of Drugs Prescribed by Generic Name	86%
Percentage of Drugs from the National List (NLEM, 2022)	90%
Polypharmacy Prevalence (≥2 psychotropics per prescription)	62%
Excessive Polypharmacy (>4 psychotropics per prescription)	7%

Table 5: Socio-economic Status and Psychotropic Drug Prescribing Trends.

Socio-economic Group (Modified Kuppuswamy Scale)	Number of Patients (n)	Commonly Prescribed Drugs
Lower (Class IV & V)	55 (36.7%)	Haloperidol, Amitriptyline
Middle (Class II & III)	70 (46.7%)	Risperidone, Sertraline
Upper (Class I)	25 (16.6%)	Aripiprazole, Escitalopram
Total	150	

Note: Chi-square test revealed a statistically significant association between socio-economic class and type of psychotropic drug prescribed (χ^2 = 11.47, df = 4, p = 0.02).

Discussion:

This study evaluated psychotropic drug prescribing patterns and their association with socio-economic status among patients attending a tertiary care psychiatric outpatient department in Eastern India. The findings reveal a generally rational approach to psychotropic prescribing, demonstrated by high adherence to essential medicine and generic prescribing guidelines, but also highlight concerns regarding polypharmacy and socio-economic disparities influencing treatment choices.

Demographic Trends:

The study population had a mean age of 36.4 years, with a slight male predominance (54%). This aligns with national and international data showing that psychiatric disorders—particularly schizophrenia, bipolar disorder, and major depressive disorder—commonly manifest during early and middle adulthood[1,2]. Similar age and gender distributions have been observed in

other Indian psychopharmacology studies, suggesting that the outpatient population at tertiary centers broadly reflects the epidemiology of psychiatric illness in urban India[3,4].

Pattern of Psychotropic Drug Use:

Antipsychotics (52%) were the most frequently prescribed class, followed by antidepressants (29.3%), mood stabilizers (10%), and anxiolytics (8.7%). This pattern is consistent with findings from other tertiary hospitals across India[5,6,7], reflecting the high burden of psychotic and mood disorders in outpatient psychiatric practice. The preference for risperidone among antipsychotics and sertraline among antidepressants mirrors their proven efficacy and favorable side-effect profiles[8,9].

Importantly, 86% of all drugs were prescribed by their generic names, and 90% were included in the National List of Essential Medicines (NLEM, 2022)—indicative of institutional adherence to WHO-recommended prescribing indicators[10]. This level of compliance underscores awareness among prescribers regarding cost-effective and rational medication use, especially significant in resource-limited, government-funded hospitals.

Polypharmacy and Rational Prescribing:

Despite these encouraging findings, polypharmacy (≥ 2 psychotropic drugs per prescription) was observed in 62% of cases, while excessive polypharmacy (> 4 psychotropics) occurred in 7%. These values are higher than ideal WHO recommendations but are comparable to other Indian and global studies reporting psychotropic polypharmacy rates between 50–70% in outpatient settings[11,12].

While certain cases may necessitate combination therapy—particularly in comorbid or treatment-resistant conditions—routine multi-drug prescriptions risk adverse effects, drug–drug interactions, and poor adherence. Such practices also escalate treatment costs, posing a disproportionate burden on low-income patients. Periodic prescription audits, adherence to evidence-based treatment algorithms, and prescriber education can help reduce unnecessary polypharmacy and enhance rational use.

Socio-economic Status and Prescribing Disparities:

A statistically significant association ($p = 0.02$) was observed between socio-economic class and the type of psychotropic drug prescribed. Patients belonging to lower-income groups (Kuppuswamy classes IV & V) were more frequently prescribed older and less expensive drugs such as haloperidol and amitriptyline, while higher-income patients tended to receive newer, costlier agents such as aripiprazole and

escitalopram.

This trend reflects the socioeconomic gradient in access to modern psychotropics and mirrors previous research highlighting affordability and cost considerations as major determinants of prescribing in Indian psychiatry[13,14]. Kolkata's public psychiatric hospitals cater primarily to patients with limited financial means, where consultation fees are nominal and many medicines are supplied at subsidized or no cost. In such contexts, prescribers often balance therapeutic efficacy against affordability and availability, which may inadvertently perpetuate treatment disparities. Addressing this requires broader policy measures such as expanding essential drug lists, improving generic drug availability, and ensuring equitable access to newer agents when clinically warranted.

Statistical Approach and Methodological Considerations:

The study relied on descriptive statistics and Chi-square testing to assess associations. Owing to the feasibility-based sample size, multivariate regression analysis was not applied; this limitation restricts adjustment for confounders such as diagnosis, age, or comorbidity. However, the study still provides meaningful preliminary evidence of prescribing trends that warrant validation through larger, multicentric, and multivariate analyses.

Comparison with Literature:

Overall, the findings correspond well with earlier Indian studies emphasizing moderate rationality in psychotropic prescribing—characterized by high essential medicine use but frequent polypharmacy[6,7,12]. Comparable patterns have been documented in developing countries, where prescribers often adapt their choices according to drug availability, patient affordability, and local health system constraints[10,15]. These findings underscore the interplay between clinical judgment and socioeconomic realities in determining treatment practices.

Strengths and Limitations:

Key strengths of this study include its focus on a real-world government hospital setting, assessment of WHO prescribing indicators, and integration of socio-economic factors—an often-overlooked determinant of psychotropic utilization. The study was conducted under ethical oversight, ensuring data reliability and transparency.

However, several limitations must be acknowledged. The sample size was determined by feasibility rather than formal power calculation, which may limit statistical precision. The single-center, cross-sectional design restricts generalizability and causal inference. The use of convenience and purposive sampling

may introduce selection bias. Additionally, clinical outcomes, adherence patterns, and adverse events were not evaluated. Future studies with larger, multicentric samples and multivariate modeling are recommended to overcome these limitations.

Implications and Recommendations:

The present study reinforces the need for continuous monitoring of psychotropic drug use in India through drug utilization reviews and prescription audits. Institutional training programs emphasizing rational prescribing principles, standard treatment guidelines, and awareness of cost-effectiveness can help optimize therapy. Policymakers should also consider socio-economic inequities when updating essential drug lists and reimbursement policies to ensure equitable access to safe and effective psychotropics across all patient groups.

Conclusion:

This study provides valuable real-world insights into psychotropic prescribing patterns in a tertiary care psychiatry outpatient department in Eastern India. The findings demonstrate moderately rational prescribing practices, with a high proportion of drugs prescribed by generic name and in accordance with the National List of Essential Medicines (NLEM, 2022)[15]. These indicators reflect commendable adherence to WHO-recommended standards and institutional awareness of cost-effective prescribing.

However, the study also highlights areas requiring attention, particularly the high prevalence of polypharmacy and the significant influence of socio-economic status on drug selection. Patients from lower-income groups were more likely to receive older, cost-effective psychotropics, while higher-income patients were prescribed newer, more expensive agents—indicating inequities in treatment access.

Given these findings, there is a clear need to strengthen rational prescribing practices through regular prescription audits, prescriber training, and institution-specific standard treatment guidelines. Broader health policy measures should aim to enhance the availability of affordable generic alternatives and reduce socio-economic barriers to equitable mental healthcare.

Future research should employ multicentric, longitudinal, and multivariate approaches to better control for confounding variables and assess outcomes such as treatment efficacy, adherence, and adverse events. Such studies will be instrumental in shaping evidence-based policies and promoting safe, rational, and equitable use of psychotropic medications across India's diverse healthcare landscape.

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